数式テスト

$$\nexists n \forall x, y, z((n, x, y, z \in \mathbb{N}) \land (x^n + y^n = z^n) \land (n \geq 3))$$

自然演繹

$$\frac{A \Rightarrow B \quad A}{B}(\Rightarrow E)$$

$$\frac{A}{B \lor A}(\lor I) \frac{B}{B \lor A}(\lor I)$$

$$\frac{A \lor B \quad \frac{[A]^1}{B \lor A}(\lor I) \quad \frac{[B]^1}{B \lor A}(\lor I)}{B \lor A}(\lor E, 1)$$

$$\frac{A \lor (B \lor C) \quad \frac{[A]^2}{A \lor B}(\lor I)}{(A \lor B) \lor C}(\lor V) \quad \frac{[B \lor C]^2 \quad \frac{[B]^1}{A \lor B}(\lor I)}{(A \lor B) \lor C}(\lor I) \quad \frac{[C]^1}{(A \lor B) \lor C}(\lor I)}{(A \lor B) \lor C}(\lor E, 1)}{(A \lor B) \lor C}(\lor E, 2)$$

$$\frac{A \lor B \quad \begin{array}{c}\vdots \\ \frac{[A]^1}{B \lor A}(\lor I)\end{array} \quad \begin{array}{c}\vdots \\ \frac{[B]^1}{B \lor A}(\lor I)\end{array}}{B \lor A}(\lor E, 1)$$

X	$P(X = i)$
1	$1/6$
2	$1/6$
3	$1/6$
4	$1/6$
5	$1/6$
6	$1/6$

$$\frac{A \lor (B \lor C) \quad \frac{[A]^2}{A \lor B}(\lor I)}{(A \lor B) \lor C}(\lor V) \quad \frac{[B \lor C]^2 \quad \frac{[B]^1}{A \lor B}(\lor I)}{(A \lor B) \lor C}(\lor I) \quad \frac{[C]^1}{(A \lor B) \lor C}(\lor I)}{(A \lor B) \lor C}(\lor E, 1)}{(A \lor B) \lor C}(\lor E, 2)$$

$$\dfrac{A \vee (B \vee C) \qquad \dfrac{\dfrac{[A]^2}{A \vee B}(\vee I)}{(A \vee B) \vee C}(\vee I) \dfrac{[B \vee C]^2 \qquad \dfrac{\dfrac{[B]^1}{A \vee B}(\vee I)}{(A \vee B) \vee C}(\vee I) \qquad \dfrac{[C]^1}{(A \vee B) \vee C}(\vee I)}{(A \vee B) \vee C}(\vee E, 1)}{(A \vee B) \vee C}(\vee E, 2)$$

18.

$$\dfrac{\dfrac{(A \to B) \vee (A \to B) \qquad \dfrac{\dfrac{[A \to B]^1 \quad [A]^2}{B}(\to E)}{B \vee C}(\vee I) \dfrac{\dfrac{[A \to C]^1 \quad [A]^2}{B}(\to E)}{B \vee C}(\to E)}{B \vee C}(\vee E, 1)}{A \to (B \wedge C)}(\to I, 2)$$

37. 自然演繹

$$\vdash ((A \to B) \to A) \to A$$

$$\dfrac{\dfrac{[\neg A]^2 \quad \dfrac{[A]^1 \quad (\neg E)}{\dfrac{\dfrac{\bot}{B}(\bot)}{A \to B}(\to I, 1)}}{A}(\to I, 1) \qquad [\neg A]^2}{\dfrac{\bot}{A}(\bot_c, 2)}(\neg E)}{(A \to B) \to A \to A}(\to I, 3)$$

可換図式